UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
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ATLANTA, GEORGIA 30303-8960

JAN 30 2020

Ms. Julie Espy
Acting Director
Division of Environmental Assessment & Restoration
Florida Department of Environmental Protection
Mail Station 3000
2600 Blair Stone Road
Tallahassee, Florida 32301

Dear Ms. Espy:

The U.S. Environmental Protection Agency has completed its review of the document titled *Nutrient TMDLs for Weeki Wachee Spring and Weeki Wachee River and Documentation in Support of the Development of Site-Specific Numeric Interpretations of the Narrative Nutrient Criterion (WBID[1] 1382B and 1382F)*. The Florida Department of Environmental Protection (FDEP) submitted the Weeki Wachee Spring and Weeki Wachee River Total Maximum Daily Loads (TMDLs) and revised Chapter 62-304, Florida Administrative Code (F.A.C.),[2] including the numeric nutrient criteria (NNC) for the subject water, in a letter to the EPA dated December 4, 2019 as TMDLs and as new or revised water quality standards (WQS) with the necessary supporting documentation and certification by FDEP General Counsel, pursuant to Title 40 of the Code of Federal Regulations part 131.

The NNC were adopted under Chapter 62-304.645(16) as site-specific numeric interpretations of paragraph 62-302.530(48)(b). As referenced in paragraph 62-302.531(2)(a), the FDEP intends for the submitted NNC to serve in place of the otherwise applicable criteria for springs set out in paragraph 62-302.531(2)(b). The nitrate TMDL for the Weeki Wachee River would also constitute a site-specific nutrient interpretation of the narrative nutrient criterion set forth in paragraph 62-302.530(48)(b), for this water segment. The nitrate criterion for the Weeki Wachee River segment would be in addition to the otherwise applicable NNC in subsection 62-302.531(2).

The FDEP submitted the Weeki Wachee Spring and Weeki Wachee River TMDLs to the EPA for review pursuant to both Clean Water Act (CWA) sections 303(c) and 303(d) since the TMDLs will also act as Hierarchy 1 (H1) site-specific interpretations of the State's narrative nutrient criterion pursuant to 62-302.531(2)(a)1.a. The enclosed WQS decision document summarizes the EPA's review and approval of the WQS contained in the TMDL document. The EPA's decision document memorializes the EPA's review and approval of the water quality standard, in accordance with 303(c); nothing herein should be construed to constitute a review or approval of the TMDL submitted pursuant to 303(d). The EPA will conduct its review of the TMDL following this approval of the water quality standard.

[1] WBID refers to waterbody identification
[2] Unless otherwise stated, all rule and subsection citations are to provisions in the Florida Administrative Code.

In accordance with section 303(c) of the CWA, I am hereby approving the revised WQS for nitrate for Weeki Wachee Spring and the addition of a nitrate criterion to the Weeki Wachee River. Any other criteria applicable to these waterbodies remain in effect, especially those related to NNC in the Weeki Wachee River in subsection 62-302.531(2)(c). The requirements of paragraph 62-302.530(48)(a) also remain applicable.

If you have any comments or questions relating to the approval of the H1 WQS, please contact me at (404) 562-9345, or have a member of your staff contact Dr. Katherine Snyder in the WQS program at (404) 562-9840.

Sincerely,

Jeaneanne M. Gettle, Director
Water Division

Enclosure

cc: Mr. Kenneth Hayman, FDEP
Mr. Daryll Joyner, FDEP
Mr. Ansel Bubel, FDEP

Florida Numeric Interpretation of the Narrative Nutrient Water Quality Criterion Through Total Maximum Daily Loads (TMDLs) to Establish a Hierarchy 1 (H1): Water Quality Standards (WQS) Decision Document

H1: Nutrient TMDL for Weeki Wachee Spring and Weeki Wachee River (**waterbody identification** (WBID) 1382B and 1382F)

Location: Hernando County, Florida

Status: Final

Criteria Parameter(s):

Weeki Wachee Spring: 0.28 mg/L nitrate, expressed as an annual arithmetic mean, never to be exceeded;
Weeki Wachee River: 0.20 mg/L nitrate, expressed as an annual arithmetic mean, never to be exceeded.

Background: The Florida Department of Environmental Protection (FDEP) submitted the final H1 for the *Nutrient TMDLs for Weeki Wachee Spring and Weeki Wachee River (WBIDs 1382B and 1382F) and Documentation in Support of the Development of Site-Specific Numeric Interpretations of the Narrative Nutrient Criterion* (the report) by letter dated Deeember 4, 2019. The draft reports for Weeki Wachee Spring and Weeki Wachee River are dated June 2013 and September 2013 and were received by the EPA in June 2013 and on September 19, 2013, respectively. The final combined Weeki Wachee Spring and Weeki Wachee River report dated June 2014 includes H1 target concentrations and loads. The final report was received by the EPA on December 6, 2019.

The submission included:

- Submittal letter
- Nutrient TMDL for Weeki Wachee Spring and Weeki Wachee River and Documentation in Support of the Development of Site-Speeific Numeric Interpretations of the Narrative Nutrient Criterion
- Documents related to Public Workshop
- Documents related to Public Hearing
- Documents related to Puhlic Notice for Rulemaking and Rule Adoption
- Public Comments Received

This document explains how the submission meets the Clean Water Act (CWA) statutory requirements for the approval of WQS under section 303(c) and the EPA's implementing regulations in Title 40 of the Code of Federal Regulations (40 C.F.R.) part 131. The decision document memorializes the EPA's review and approval of the water quality standard, in accordance with 303(c); nothing herein should be construed to constitute a review or approval of a TMDL pursuant to 303(d).

WQS REVIEWER: Katherine Snyder, WQS Coordinator, snyder.katherine@epa.gov

EPA HIERARCHY 1 REVIEW DOCUMENT - WQS

Weeki Wachee Spring and Weeki Wachee River (WBID 1382B and 1382F)/ Springs Coast Basin – Nutrients

This document contains the EPA's review of the above-referenced H1. This review document includes WQS review guidelines that state or summarize currently effective statutory and regulatory requirements applicable to this approval action. Review guidelines are not themselves regulations. Any differences between review guidelines and the EPA's implementing regulations should be resolved in favor of the regulations themselves. The italicized sections of this document describe the EPA's statutory and regulatory requirements for approvable H1s. The sections in regular type reflect the EPA's analysis of the state's compliance with these requirements.

I. WQS Decision – Supporting Rationale

Section 303(c) of the CWA and the EPA's implementing regulations at 40 C.F.R. section 131 describe the statutory and regulatory requirements for approvable WQS. Set out below are the requirements for WQS submissions, under the CWA and the regulations. The information identified below is necessary for the EPA to determine if a submitted WQS meets the requirements of the CWA and, therefore, may be approved by the EPA.

1. Use Designations

Section 131.10(a) provides that each state must specify appropriate water uses to be achieved and protected. The classification of the waters of the state must take into consideration the use and value of water for public water supplies, protection and propagation of fish, shellfish and wildlife, recreation in and on the water, agricultural, industrial, and other purposes including navigation. In no case shall a state adopt waste transport or waste assimilation as a designated use for any waters of the United States.

Assessment: Weeki Wachee Springs and the Weeki Wachee River are classified as Class III Freshwater (fish consumption; recreation; and propagation and maintenance of a healthy, well-balanced population of fish and wildlife).

2. Protection of Downstream Uses

Section 131.10(b) provides that in designating uses of a waterbody and the appropriate criteria for those uses, the state shall take into consideration the WQS of downstream waters and shall ensure that its WQS provide for the attainment and maintenance of the WQS of downstream waters.

Rule 62-302.531(4) of the Florida Administrative Code (F.A.C.) requires that downstream uses be protected. An imbalance of flora occurring in Weeki Wachee Spring and River is attributable primarily to elevated nutrient concentrations at the spring vents. Weeki Wachee Spring is the primary source for the Weeki Wachee River. From the headspring, the river continues 7 miles west where it flows into the Gulf of Mexico. When the nutrient thresholds established in this report are met, algal growth that contributes to the floral imbalance will be reduced so that algal coverage will be at background levels, as discussed in the report. Since the source of elevated nutrients in this system is predominately from spring flow, decreasing the concentration from the spring will also reduce nutrients in the downstream segment of the river.

WBID 1382I is the estuarine segment of the Weeki Wachee River (Class III Marine) that connects the fresh waterbodies discussed in the report to the Gulf of Mexico (Hernando County) (WBID 8042; Class III Marine). WBIDs 8042 and 1382I are not impaired for nutrients but are on the Verified List for mercury in fish tissue. Reductions in nutrients as prescribed in this TMDL report are not expected to cause any nutrient impairments downstream and will result in water quality improvements to downstream waters.

Assessment: The H1s are providing use protection for the downstream waters.

3. Water Quality Criteria

Section 131.11(a) provides that states must adopt those water quality criteria that protect the designated use. Such criteria must be based on sound scientific rationale and must contain sufficient parameters or constituents to protect the designated use. For waters with multiple use designations, the criteria shall support the most sensitive use.

Weeki Wachee Spring and Weeki Wachee River are listed as impaired by nutrients because of their consistently elevated concentrations of nitrate (above 0.6 milligrams per liter [mg/L]) and the corresponding evidence of imbalance in flora and fauna caused by algal smothering. This information, documented by multiple sources in the report, provided support for the determination of impairment for the 2009 Verified List of impaired waters. To develop the nitrate target concentration for Weeki Wachee Spring and River, the FDEP used the findings of a site-specific historical study, described in more detail below, instead of a value based on the statewide criterion.

The earliest documentation of observed algal mats was recorded in the May 1991 Southwest Florida Water Management District (SWFWMD) document, *Resource Evaluation of the Weeki Wachee Riverine System Proposed Water Management Land Acquisition.* SWFWMD later mapped the area in greater detail on October 9, 1991, for its 1994 report, *Weeki Wachee River Diagnostic/Feasibility Study: Section V, Submerged Aquatic Vegetation.* In addition to the visual survey of submerged aquatic vegetation (SAV), water quality samples were collected monthly. Water quality stations located in the 1991 *Lyngbya* filamentous algae-dominated areas had nitrate concentrations ranging from 0.28 to 0.38 mg/L. Based on the Diagnostic/Feasibility Study results from 1991 (SWFWMD 1994), nitrate concentrations equal to or greater than 0.28 mg/L resulted in *Lyngbya* growth. Therefore, the maximum allowable nitrate target concentration limit for Weeki Wachee Spring is 0.28 mg/L. The FDEP believes that reducing the growth rate of macroalgae by reducing nitrate concentrations lower than 0.28 mg/L will cause filamentous algae biomass (including *Lyngbya*) to decrease.

To estimate a corresponding nitrate target concentration appropriate for the Weeki Wachee River (WBID 1382F), the nitrate concentrations for Weeki Wachee Spring were plotted against the nitrate concentrations for the nearby water quality station, 21FLSWFD20926. The relationship of Station A (Weeki Wachee Spring Station 21FLSWFD20919) and Station C (Weeki Wachee River Station 21FLSWFD20926) to nitrate concentrations over time shows the dilution and attenuation of nitrate as nitrate-enriched water migrates from the spring vent through the water column to a nearby station in the river. Once the water leaves the spring vent, nitrate is readily available for uptake by benthic organisms (Woods Hole Group 2007). Also, the effects of dilution from surface water runoff and denitrification processes further reduce nitrate concentrations. In 1991, the nitrogen attenuation and dilution factor between Station A and Station C was 0.08 mg/L. The distance between these stations is 0.5 miles. Using data collected from 2004 to 2012, the nitrogen attenuation and dilution rate remains between 0.07 and 0.08 mg/L. Based on the results of the regression equation (N [results] = 14, RSquare 0.90, p-value 0.0001) shown in Figure 5.2 of the report, the maximum allowable nitrate target concentration limit for the Weeki Wachee River, WBID 1382F, is therefore 0.20 mg/L.

The FDEP believes that 0.28 mg/L nitrate as the TMDL for Weeki Wachee Spring and 0.20 mg/L nitrate as the TMDL for Weeki Wachee River as annual averages are appropriate and conservative targets.

Annual average targets are most appropriate because algal growth does not respond to instantaneous changes in nutrient concentration. Therefore, a short-term exceedance of the target concentration may not produce negative or positive biological or ecological effects.

Assessment: The Weeki Wachee Spring and Weeki Wachee River nitrate criteria are 0.28 mg/L and 0.20 mg/L nitrate, respectively, expressed as an annual arithmetic mean, never to be exceeded. The resulting water quality will protect the designated uses for this waterbody. Any other criteria applicable to this waterbody remain in effect, including the nutrient criteria for parameters other than nitrate set out in subsection 62-302.531(2), F.A.C.

4. Scientific Defensibility

Section 131.11(b) provides that, in establishing criteria, states should establish numerical values based on 304(a) guidance, 304(a) guidance modified to reflect site-specific conditions, or other scientifically defensible methods.

Weeki Wachee Spring and Weeki Wachee River were listed as impaired on the 2009 Verified List of impaired waters for elevated concentrations of nitrate and evidence of algal smothering. The TMDL document based the nitrate targets on site-specific historical nitrate data and selection of a level that would reduce the presence of algal mats. The site-specific criteria of 0.28 mg/L nitrate for Weeki Wachee Spring and 0.20 mg/L nitrate for Weeki Wachee River are expressed as annual averages, never to be exceeded. Annual average targets are most appropriate because algal growth does not respond to instantaneous changes in nutrient concentration. Therefore, a short-term exceedance of the target concentration may not produce negative or positive biological or ecological effects.

Assessment: The EPA determined use of historical water quality and algal data, combined with the derivation of two values that would reduce the algal response, to be an appropriate approach to determine site-specific nitrate criteria for Weeki Wachee Spring and the Weeki Wachee River. This approach is summarized in Section 3 of this document and is presented in detail in the report.

5. Public Participation

Section 131.20(b) provides that states shall hold a public hearing when revising WQS, in accordance with provisions of state law and the EPA's public participation regulation (40 C.F.R. part 25). The proposed WQS revision and supporting analyses shall be made available to the public prior to the hearing.

A public workshop was conducted by the FDEP on September 30, 2013 in Weeki Wachee, Florida, to obtain comments on the change in water quality criterion contained in the nutrient TMDLs for Weeki Wachee Spring and the Weeki Wachee River. The workshop notice indicated that the nutrient TMDLs, if adopted, constitute site-specific numeric interpretations of the narrative criterion set forth in paragraph 62-302.530(48)(b), F.A.C., that would replace the otherwise applicable NNC in subsection 62-302.531(2), F.A.C., for these particular waters. The FDEP also held a public hearing on May 14, 2019 in Tallahassee, Florida.

Assessment: The FDEP has met the public participation requirements for these H1s.

6. Certification by the State Attorney General

Section 131.6(e) requires that the state provide a certification by the state Attorney General or other appropriate legal authority within the state that the WQS were duly adopted pursuant to state law.

A letter from the FDEP General Counsel, Justin G. Wolfe, dated December 4, 2019, certified that the Weeki Wachee Spring and Weeki Wachee River TMDLs were duly adopted as WQS pursuant to state law.

Assessment: The FDEP has met the requirement for Attorney General certification for these H1s.

7. Endangered Species Act Section 7 Consultation

Section 7(a)(2) of the Endangered Species Act (ESA) requires federal agencies, in consultation with the Services, to ensure that their actions are not likely to jeopardize the continued existence of federally listed species or result in the destruction or adverse modification of designated critical habitat of such species.

The U.S. Fish and Wildlife Service (USFWS) provided concurrence with the EPA's programmatic consultation on site-specific nutrient criteria for the FDEP on July 21, 2015 for any site-specific nutrient criteria that are more stringent than the existing default nutrient criteria in place in the state of Florida for the waterbody. Because the site-specific criterion in this report for Weeki Wachee Spring is more stringent than the default spring criterion, an additional ESA section 7 consultation for this standards action is not required.

The nitrate criterion for the Weeki Wachee River is an another level of protection for the river, in addition to the default NNC that remain effective for the river. The EPA initiated informal consultation with USFWS on the 0.20 mg/L nitrate value for the Weeki Wachee River on December 6, 2019 and received a letter of concurrence on January 28, 2020.

Assessment: The EPA has met the ESA requirements for this action.

II. Conclusion

The EPA Region 4 Water Division Director is **APPROVING** the H1 NNC addressed by this decision document in accordance with section 303(c) of the CWA, as consistent with the CWA and 40 C.F.R. part 131.

The H1 NNC for Weeki Wachee Spring presented in this decision document will constitute the site-specific numeric interpretation of the narrative nutrient criterion set forth in paragraph 62-302.530(48)(b), F.A.C., that will replace the otherwise applicable numeric criterion for nitrate in paragraph 62-302.531(2)(b) for this particular water, pursuant to paragraph 62-302.531(2)(a)1.b., F.A.C. The H1 NNC for Weeki Wachee River presented in this decision document will also constitute another site-specific numeric interpretation of the narrative nutrient criterion set forth in paragrapb 62-302.530(48)(b), F.A.C., which will supplement the otherwise applicable numeric criteria for nitrogen, phosphorus, and chlorophyll *a* in paragraph 62-302.531(2)(c), F.A.C. for the Weeki Wachee River. Based on the chemical, physical, and biological data presented in the development of the H1 NNC outlined above, the EPA concludes that the revised NNC for Weeki Wachee Spring and Weeki Wachee River provide for and protect healthy, well-balanced, biological communities in the waters to which the NNC apply and are consistent with the CWA and its implementing regulations at 40 C.F.R. § 131.11.

Therefore, the revised nutrient criteria for Weeki Wachee Spring and Weeki Wachee River are 0.28 mg/L and 0.20 mg/L nitrate, respectively, expressed as an annual arithmetic mean, never to be exceeded. All other criteria applicable to this waterbody remain in effect, including other applicable criteria at 62-302.531(2)(c), F.A.C. The requirements of paragraph 62-302.530(48)(a), F.A.C. also remain applicable.

The EPA's decision document memorializes the EPA's review and approval of the water quality standard, in accordance with 303(c); nothing herein should be construed to constitute a review or approval of a TMDL pursuant to 303(d).